Claims

1. A device to remove and recover by-products formed during processing of a gaseous effluent containing at least hydrogen sulfide (H_2S) and sulfur dioxide (SO_2), wherein an organic solvent and at least one catalyst are used, said device comprising at least one contactor reactor, at least one decantation zone, several lines for delivery of at least a gas to be processed, of a fluid comprising at least solvent and catalyst, several lines for extraction of at least a cleaned gas and of a fluid F containing at least solvent, catalyst, sulfur and by-products, at least a processing zone for processing said fluid F comprising at least solvent, catalyst, sulfur and by-products, said processing zone comprising heating means suited to favour crystallization of the by-products and separation means suited to separate the by-products from the rest of said fluid comprising at least solvent, catalyst and sulfur, and at least a fluid F_1 containing mainly solvent, catalyst and sulfur and nearly free of by-products and a fluid F_2 comprising most of the by-products are recovered at the outlet of said processing zone.

2. A device as claimed in claim 1, characterized in that heating means are for example operated between 120 and 180°C, preferably between 120 and 150°C.

3. A device as claimed in claim 1, characterized in that decantation zone is situated in the lower part of said contactor reactor.

4. A device as claimed in claim 1, characterized in that the processing zone can comprise at least one of the means selected from the group consisting of:

filtering means for producing at least fluid F_1 containing mainly solvent and nearly free of by-products, and at least fluid F_2 containing most of the by-products formed, and

capture means for producing at least fluid F_1 containing mainly solvent and nearly free of by-products, and at least fluid F_2 containing most of the by-products formed.

5. A device as claimed in claim 1, characterized in that it comprises a line allowing to recycle at least part of the solvent from the processing stage to the contactor reactor.

6. A device as claimed in claim 1, characterized in that said contactor reactor is selected from the group consisting of a reactor with random or stacked packing, a static mixer SMV, an impactor, a hydro-ejector, an atomizer, and a wire contactor.

7. A device as claimed in claim 1, wherein said device is connected to a Claus plant processing H_2S from natural gas scrubbing operation or crude oil refining operations, and said gaseous effluent is an effluent of the Claus plant.